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ABSTRACT OF THE DISCLOSURE

A method of forming floating gates for flash memory devices. A plurality of substrates is provided, in which a film to be etched and an overlying masking pattern layer are provided overlying
5 each substrate. Each of the films in a plasma chamber is etched in sequence using the masking pattern layer as an etch mask, a polymer layer being deposited over the inner wall of the plasma chamber during the etching. An intermediary cleaning process is performed in the plasma chamber between the etchings before
10 the deposited polymer layer reaches such a degree as to induce lateral etching on the next film to be etched, thereby improving etching profile of the films.